THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte TATSUO NAKADA, HIROKAZU AOYAMA
and SATOSHI KOYAMA

_____

Appeal No. 95-2958
Application 08/108,576[1]

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HEARD: December 9, 1998

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Before WEIFFENBACH, ELLIS and OWENS, *Administrative Patent Judges.*

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1-3 and 8-17. Claims 4-7, which are the only other

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[1] Application for patent filed September 3, 1993. According to applicants, this application is a national stage application under 35 U.S.C. § 371 of PCT/JP93/00027 filed January 12, 1993.

claims in the application, stand withdrawn from consideration by the examiner as being directed toward a nonelected invention.

THE INVENTION

Appellants claim a method for making one or more specified halogenated compounds by reacting 1,1,2,3,4,4-hexachloro-1,3-butadiene and hydrogen fluoride in the gas phase in the presence of a fluorinating catalyst. Claim 1 is illustrative and reads as follows:

> 1. A method for preparing at least one halogenated compound selected from the group consisting of 1,1,1,4,4,4,-hexafluoro-2,3-dichlorobutane, 1,1,1,4,4,4-hexafluoro-2-chloro-2-butene, 1,1,1,2,4,4,4-heptafluoro-2-butene and 1,1,1,2,2,4,4,4-octafluorobutane, which comprises reacting 1,1,2,3,4,4-hexachloro-1,3-butadiene with hydrogen fluoride in a gas phase in the presence of a fluorinating catalyst.

THE REFERENCES

Minklei	3,965,201	Jun. 22, 1976
Fiske et al. (Fiske)	4,147,733	Apr. 3, 1979
Bielefeldt et al. (Bielefeldt)	5,146,019	Sep. 8, 1992

REJECTIONS

Claims 1-3 and 8-17 stand rejected under 35 U.S.C. § 103 over Bielefeldt, Minklei, or these references in combination, and also over these references individually or in combination, in view of Fiske.

OPINION

We have carefully considered all of the arguments advanced by appellants and the examiner and agree with appellants that the aforementioned rejections are not well founded. Accordingly, we reverse these rejections.

Bielefeldt discloses a method for the simultaneous preparation of 2-chloro-1,1,1,4,4,4-hexafluoro-2-butene and 1,1,1,2,4,4,4-heptafluoro-2-butene from hexachlorobutadiene (col. 1, lines 10-13). Bielefeldt indicates (col. 2, lines 13-24) that the reaction takes place in the liquid phase:

> Since at atmospheric pressure hydrogen fluoride boils at about 20EC., it is necessary, if the reaction is carried out at temperatures above about 18EC., to work in closed vessels under the particular autogenous pressure and/or to prevent the evaporation of hydrogen fluoride by pressurizing with another gas, for example nitrogen. The resulting hydrogen chloride can, if necessary, be released through a pressure-maintaining valve.
>
> In general it is advantageous after the completion of the reaction to continue stirring for some time at the final temperature, for example 1 to

5 hours.

The examiner argues that appellants' claims merely require that the hydrogen fluoride, but not the 1,1,2,3,4,4-hexachloro-1,3-butadiene, is in the gas phase (answer, page 4). The portion of the above excerpt which states: "to work in closed vessels under the particular autogenous pressure and/or to prevent the evaporation of hydrogen fluoride" appears to indicate that at least some hydrogen fluoride can be in the gas phase.

Appellants argue that "gas phase" in their independent claims applies to both the hydrogen fluoride and 1,1,2,3,4,4-hexachloro-1,3-butadiene reactants (reply brief, pages 2-3).

We give appellants' claims their broadest reasonable interpretation in view of appellants' specification, see *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); *In re Sneed*, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983); *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976).

Appellants' specification refers to the reaction as a

"gas phase fluorination" (page 3) and states that the reaction temperature "is usually from 250 to 450EC, preferably from 300 to 400EC" (page 4). Appellants state that "[a] reaction pressure is not limited, but it is usually from 0.1 to 20 atm, preferably 1 to 10 atm" (*see id*.). In the only example in appellants' specification, both the hydrogen fluoride and 1,1,2,3,4,4-hexachloro-1,3-butadiene reactants are in the gas phase (page 5).

The boiling range of 1,1,2,3,4,4-hexachloro-1,3-butadiene is 210-220EC,[2] which is below the temperature range of 250-450EC in appellants' specification (page 4). Although pressures as high as 20 atm are disclosed in appellants' specification (*see id*.), we find no indication that such pressures would produce a liquid phase. Thus, in view of appellants' specification, we conclude that the claims require that both the hydrogen fluoride and 1,1,2,3,4,4-hexachloro-1,3-butadiene reactants are in the gas phase. Even if some of Bielefeldt's hexachlorobutadiene were to enter the gas phase,

[2] *See The Condensed Chemical Dictionary*, 526 (Van Nostrand Reinhold, 10th ed., 1981).

that hexachlorobutadiene would not react with the hydrogen fluoride in the presence of a catalyst as required by appellants' claims.

For the above reasons, we conclude that the examiner has not established a *prima facie* case of obviousness of appellants' claimed invention over Bielefeldt.

Minklei discloses a method which "comprises contacting a vapor phase mixture of hexachlorobutadiene, chlorine and hydrogen fluoride with a fluorinated alumina catalyst at a temperature of between about 300E and about 550EC and recovering 2,3-dichlorohexafluorobutene-2" (col. 1, lines 27-31). Thus, Minklei's reaction is in the gas phase, but the product produced is not among those recited in appellants' claims.

The examiner argues that because Minklei's method differs from that of appellants only in the product made, the method would have been *prima facie* obvious to one of ordinary skill in the art (answer, page 5). The examiner reached his conclusion of obviousness of appellants' claimed invention based on a *per se* rule that making a new product by a prior

art process would have been obvious to one of ordinary skill in the art. As stated by the Federal Circuit in *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995), "reliance on *per se* rules of obviousness is legally incorrect and must cease."

When an examiner is determining whether a claim should be rejected under 35 U.S.C. § 103, the claimed subject matter as a whole must be considered. *See Ochiai*, 71 F.3d at 1569, 37 USPQ2d at 1131. The subject matter as a whole of process claims includes the starting materials and product made. When the starting and/or product materials of the prior art differ from those of the claimed invention, the examiner has the burden of explaining why the prior art would have led one of ordinary skill in the art to modify the materials of the prior art process so as to arrive at the claimed invention. *See Ochiai*, 71 F.3d at 1570, 37 USPQ2d at 1131. The examiner has not provided such an explanation.

The examiner argues that in Minklei's Example 2, 8.4% of the product is not identified, and it is reasonable to assume that at least a small amount of this material is a product

recited in appellants' claims (answer, page 5). In other words, the examiner argues that production of at least one of the products recited in appellants' claims is an inherent characteristic of the method recited in Minklei's Example 2.

When an examiner relies upon a theory of inherency, "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Int. 1990). Inherency "may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Ex parte Skinner*, 2 USPQ2d 1788, 1789 (Bd. Pat. App. & Int. 1986).

Minklei teaches that the reactants in his method include at least about 1 mole of chlorine for each 12 moles of hydrogen fluoride and 2 moles of hexachlorobutadiene (col. 2, lines 3-7). The examiner has provided no basis in fact or technical reasoning to support his assertion that the reaction of Minklei's hydrogen fluoride and hexachlorobutadiene in the

presence of this chlorine would produce a product recited in appellants' claims.

Accordingly, we conclude that the examiner has not established a *prima facie* case of obviousness of appellants' claimed invention over Minklei.

The examiner does not explain, and it is not apparent, why Bielefeldt and Minklei, taken together, would have fairly suggested appellants' claimed invention to one of ordinary skill in the art.

Fiske discloses a fluorination method wherein hydrogen fluoride is reacted with a chlorinated lower aliphatic hydrocarbon in the vapor phase at about 275-425EC in the presence of steam and a metal fluoride catalyst (col. 1, lines 27-36). Fiske does not disclose that the method produces any of the products recited in appellants' claims.

The examiner states that he applies Fiske only with respect to the catalysts in some of appellants' dependent claims (answer, page 5). It appears that the examiner also intends for this reference to be applied to appellants'

independent claim 15. Regardless, the examiner has not explained, and it is not apparent, why Fiske cures the above-noted deficiencies in Bielefeldt and Minklei.

DECISION

The rejections of claims 1-3 and 8-17 under 35 U.S.C. § 103 over Bielefeldt, Minklei, or these references in combination, and also over these references individually or in combination, in view of Fiske, are reversed.

REVERSED

CAMERON WEIFFENBACH Administrative Patent Judge	)	
JOAN ELLIS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES

)
TERRY J. OWENS)
Administrative Patent Judge)

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